539,384

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number
WO 2004/055690 A1

(51) International Patent Classification[7]: G06F 17/14, H04N 7/50, 7/24, 7/26

(21) International Application Number: PCT/IB2003/005909

(22) International Filing Date: 12 December 2003 (12.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/433,744 16 December 2002 (16.12.2002) US

(71) Applicant *(for all designated States except US)*: KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: CHEN, Richard, Y. [US/US]; P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(74) Common Representative: KONINKLIJKE PHILIPS ELECTRONICS N.V.; Intellectual Property & Standards, c/o BELK, Michael E., P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

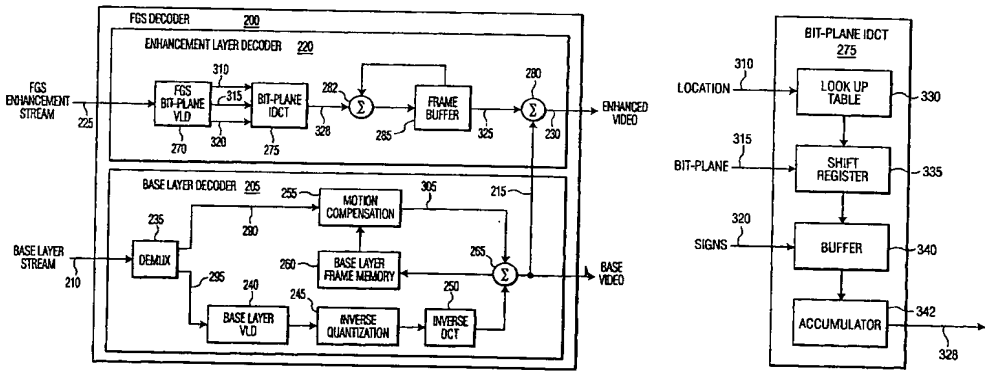
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*

Published:

— *with international search report*

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR BIT-PLANE DECODING OF FINE-GRANULARITY SCALABLE (FGS) VIDEO STREAM



(57) Abstract: A method of inverse transform of bit-plane-oriented discrete cosine transform transformed data representing the enhancement layer of a frame of video date encopoded in a fine granularscability comprising: providing a lookup table comprissing a mtrix of numerical contributions based on location of a bit-plane cell within any bit-plane of a bit-plane set, the numerical contributions independent of bit-plane order; selecting the numerical contribution from the lookup table for each bit-plane cell having a discrete cosine transform coefficient od 1 in each bit-plane; and shifting a binary representation of each selected numerical contribution by number of bit-positions equal to a bit-plane number of the bit-plane of which a particular bit-plane cell is a menber.

WO 2004/055690 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.